CUTTING DATA - THA90 & THX90 HELICAL CUTTERS

CUTTING DATA FOR HELICAL CUTTERS						Coated									Cermet			Uncoated		
ISO 513	MILLING CUTTER / MATERIAL					TN7525			TN25M			TN7535/TN450			TTM			TTR		
	Cutter	Carbide Insert				Feed f_z inches per tooth [1]														
P	THA90 [1]	AONT-10T308				.004	**.006**	.008	.004	**.006**	.008	.006	**.008**	.010	.004	**.006**	.008	---	**---**	---
	THX90 [1]	222.79.600				---	**.003**	.005	---	**.003**	.005	---	**.003**	.006	---	**.003**	.005	---	**---**	---
		222.79.400 / 500				.004	**.007**	.010	.004	**.007**	.010	.004	**.009**	.012	.004	**.007**	.010	.004	**.009**	.012
	Work Material		Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM														
	Carbon steel, Unalloyed steel, cast steel and free cutting steel	< 0.25% C	annealed	125	1	1073	**813**	683	910	**699**	601	618	**536**	504	553	**488**	455	455	**358**	293
		≥ 0.25% C	annealed	190	2	813	**634**	553	618	**488**	423	455	**374**	358	390	**325**	293	325	**260**	228
		< 0.55% C	heat-treated	250	3	683	**520**	471	520	**390**	358	374	**325**	293	325	**260**	228	276	**195**	179
		≥ 0.55% C	annealed	220	4	699	**553**	471	536	**423**	358	390	**358**	325	358	**276**	260	293	**228**	195
			heat-treated	300	5	601	**423**	374	455	**325**	276	325	**276**	260	276	**228**	195	228	**179**	163
	Low alloy steel and cast steel		annealed	200	6	780	**601**	488	601	**455**	374	455	**374**	358	390	**325**	293	325	**260**	228
			heat-treated	275	7	601	**471**	390	455	**358**	293	358	**293**	276	293	**260**	228	260	**195**	179
			heat-treated	300	8	520	**390**	341	390	**293**	260	293	**260**	228	260	**195**	179	195	**163**	130
			heat-treated	350	9	471	**341**	---	358	**260**	---	260	**179**	---	228	**163**	---	179	**130**	---
	High alloy steel, cast steel & tool steel		annealed	200	10	601	**471**	423	455	**358**	325	390	**341**	293	358	**276**	260	293	**228**	195
			heat-treated	325	11	390	**309**	---	293	**228**	---	260	**179**	---	228	**163**	---	179	**130**	---
M	Cutter	Carbide Insert				Feed f_z inches per tooth [1]														
	THA90 [1]	AONT-10T308				.004	**.006**	.008	.004	**.006**	.008	.006	**.008**	.010	.004	**.006**	.008	---	**---**	---
	THX90 [1]	222.79.600				---	**.003**	.005	---	**.003**	.005	---	**.003**	.006	---	**.003**	.005	---	**---**	---
		222.79.400 / 500				.004	**.007**	.010	.004	**.007**	.010	.004	**.007**	.010	.004	**.007**	.010	.004	**.007**	.010
	Work Material		Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM														
	400 series Stainless & cast steel		ferrit./mart.	200	12	764	**569**	488	585	**439**	374	423	**374**	341	374	**293**	276	325	**244**	195
			martensitic	240	13	666	**471**	390	504	**358**	293	358	**293**	276	325	**260**	228	276	**195**	179
	300 series Stainless & cast steel		austenitic	180	14	683	**423**	---	520	**325**	---	390	**228**	---	325	**195**	---	---	**---**	---

CUTTING DATA FOR HELICAL CUTTERS						Coated			Uncoated					
ISO 513	MILLING CUTTER / MATERIAL					TN5515			THM			THR		
	Cutter	Carbide Insert				Feed f_z inches per tooth [1]								
K	THA90 [1]	AONT-10T308				.005	**.008**	.010	.005	**.010**	.012			
	THX90 [1]	222.79.600				.003	**.006**	.008	.004	**.007**	.009	---	**---**	---
		222.79.400 / 500				.005	**.009**	.012	.005	**.010**	.014			
	Work Material		Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM								
	Grey cast iron		ferrit./pearl.	180	15	959	**699**	601	439	**325**	276	---	**---**	---
			pearlitic	260	16	731	**553**	471	325	**260**	228	---	**---**	---
	Nodular cast iron		ferritic	160	17	813	**601**	488	390	**293**	244	---	**---**	---
			pearlitic	250	18	601	**358**	---	276	**195**	---	---	**---**	---
	Malleable cast iron		ferritic	130	19	829	**488**	---	390	**244**	---	---	**---**	---
			pearlitic	230	20	634	**406**	---	309	**195**	---	---	**---**	---
N	Cutter	Carbide Insert				Feed f_z inches per tooth [1]								
	THA90 [1]	AONT-10T308							.005	**.010**	.012			
	THX90 [1]	222.79.610				---	**---**	---	.004	**.007**	.009	---	**---**	---
		222.79.510							.005	**.010**	.014			
	Work Material		Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM								
	Cast aluminium alloys	≤ 12% Si		75	23	---	**---**	---	2763	**1983**	1658	---	**---**	---
			age-hardened	90	24	---	**---**	---	2210	**1625**	1381	---	**---**	---
		> 12% Si	heat resistant	130	25	---	**---**	---	1381	**894**	683	---	**---**	---
	Copper & copper alloys		Red Brass, brass	90	27	---	**---**	---	1105	**683**	---	---	**---**	---
			Bronze	100	28	---	**---**	---	829	**504**	---	---	**---**	---
S	Cutter	Carbide Insert				Feed f_z inches per tooth [1]								
	THA90 [1]	AONT-10T308				.003	**.004**	.005	.003	**.004**	.005	---	---	---
	THX90 [1]	222.79.600				---	**---**	---	---	**---**	---	---	**.003**	.005
		222.79.400 / 500				.003	**.005**	.006	.003	**.004**	.005	.003	**.005**	.006
	Work Material		Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM								
	High-temperature alloys Ni- or Co- based		age-hardened	280	32	130	**100**	85	98	**75**	65	75	**59**	49
			annealed	250	33	114	**81**	65	81	**59**	49	59	**49**	39
			age-hardened	350	34	85	**65**	52	65	**49**	39	49	**39**	33
	Titanium alloys		age-hardened	310	37	---	---	---	---	**---**	---	137	**107**	91

[1] The cutting data is valid for slot milling with full width of cut a_e = 100% of the cutter diameter and a maximum depth of cut a_p = 50% of the cutter diameter. For shoulder and peripheral milling the figures in the table should be converted using correction factors or the effective feed per tooth determined from:

Ratio $a_e : d_1$	5%	10%	20%	≥ 40%
f_z factor	3	2	1.5	1
SFPM factor	1.5	1.4	1.3	1.2